IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. **020431.0671**

In re Application of:	§	
	§	
MUKESH DALAL	§	Examiner:
	§	
Serial No. **09/528,457**	§	**STEVEN B. MCALLISTER**
	§	
Filed: **17 MARCH 2000**	§	Art Unit: **3627**
	§	
For: **SYSTEM AND METHOD FOR**	§	Confirmation No.: **4373**
MULTI-PARTY CONSTRAINED	§	
OPTIMIZATION	§	

AMENDED APPEAL BRIEF

MAIL STOP: APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This Amended Appeal Brief is filed in response to a Notification of Non-Compliant Appeal Brief dated 16 April 2007, which provides for a response period ending 16 May 2007.

This is an appeal from the final rejection in the Office Action dated 27 January 2004, which rejected Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-63 in the present Application.

Real Party in Interest (37 C.F.R. § 41.37(c)(1)(i)):

      This Application is currently owned by i2 Technologies US, Inc., as indicated by:

      an Assignment recorded on March 17, 2000, from the inventors to i2 Technologies, Inc., in the Assignment Records of the United States Patent and Trademark Office ("PTO") at Reel 0 10698, Frames 0 107-01 08; and

      an Assignment recorded on July 30, 2001, from i2 Technologies, Inc. to i2 Technologies US, Inc., in the Assignment Records of the PTO at Reel 012032, Frames 0151-0162.

Related Appeals and Interferences (37 C.F.R. § 41.37(c)(1)(ii)):

No known appeals, interferences, or judicial proceedings are related to or will directly affect, be directly affected by, or have a bearing on the Board's decision regarding this Appeal. For completeness of the record, Appellant notes that a previous appeal of this Application was initiated by a Notice of Appeal mailed October 30, 2002. In response to the Appeal Brief filed in the previous appeal (*see* Appeal Brief mailed December 20, 2002), the Examiner reopened prosecution with an Office Action mailed March 26, 2003.

Status of Claims (37 C.F.R. § 41.37(c)(1)(iii)):

Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 are pending in this Application, stand rejected pursuant to a Final Office Action mailed January 27, 2004 (the "Final Office Action"), and are all presented for appeal. Claims 51-63 were withdrawn from consideration without prejudice or disclaimer in a Response mailed November 10, 2003, in response to an Office Action containing a restriction requirement. All pending and withdrawn claims are shown in a Claims Appendix, attached hereto, along with an indication of the status of those claims.

<u>Status of Amendments (37 C.F.R. § 41.37(c)(1)(iv))</u>:

      All amendments submitted by Appellant have been entered by the Examiner prior to the mailing of the Final Office Action.

<u>**Summary of Claimed Subject Matter (37 C.F.R. § 41.37(c)(1)(v)):**</u>

A.   <u>Independent Claim 1</u>

Independent Claim 1 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) collectively operable to access a first optimization problem (Specification, at least at, page 3, lines 5-8 and page 9 lines 6-26, Figure 2) and a first threshold value (Specification, at least at, page 9, lines 12-16) corresponding to a first party to a negotiation, (Specification, at least at, page 3, lines 5-8 and page 5, lines 2-16; Figures 1 and 2) the first optimization problem comprising at least one first objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the first threshold value (Specification, at least at, page 9, lines 12-16) relates and one or more first constraints to which the at least one first objective relates (Specification, at least at, page 3, lines 5-23 and page 6, lines 23-37; Figure 2, constraints 36).

The system is further operable to access a second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) and a second threshold value (Specification, at least at, page 9, lines 12-16) corresponding to a second party to the negotiation, (Specification, at least at, page 3, lines 8-11 and page 5, lines 2-16; Figures 1 and 2) the second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) comprising at least one second objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the second threshold value (Specification, at least at, page 9, lines 12-16) relates and one or more second constraints to which the at least one second objective relates (Specification, at least at, page 3, lines 8-23 and page 6, lines 23-37; Figure 2, constraints 36).

The system is still further operable to generate a global solution (Specification, at least at, page 7, lines 1-13 and page 8 lines 17-28, Figure 3; global solution 54) to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with value the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, (Specification, at least at, page 3, lines 11-15 and page 9 lines 18-26) the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, (Specification, at least at, page 12, lines 1-27 and page 13 line 16 through page 14, line 4) the global solution being generated considering a fairness criterion (Specification, at least at, page 11, line 3 through page 12, line 7 and page 13, line 16 through page 14, line 4) specifying one of the following: that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) and that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion (Specification, at least at, page 9, line 27 through page 11, line 2).

B.   Independent Claim 17

Independent Claim 17 is directed towards a computer-implemented method for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10 and Figure 5). The computer-implemented method is performed using a computer system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20). The method comprises accessing a first optimization problem (Specification, at least at, page 3, lines 5-8 and page 9 lines 6-26, Figure 2) and a first threshold value (Specification, at least at, page 9, lines 12-16) corresponding to a first party to a negotiation, (Specification, at least at, page 3, lines 5-8 and page 5, lines 2-16; Figures 1 and 2) the first optimization problem comprising at least one first objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the first threshold value (Specification, at least at, page 9, lines 12-16) relates and one or more first constraints to which the at least one first objective relates (Specification, at least at, page 3, lines 5-23 and page 6, lines 23-37; Figure 2, constraints 36).

The method further comprises accessing a second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) and a second threshold value (Specification, at least at, page 9, lines 12-16) corresponding to a second party to the negotiation, (Specification, at least at, page 3, lines 8-11 and page 5, lines 2-16; Figures 1 and 2) the second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) comprising at least one second objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the second threshold value relates and one or more second constraints to which the at least one second objective relates (Specification, at least at, page 3, lines 8-23 and page 6, lines 23-37; Figure 2, constraints 36).

The method still further comprises generating a global solution (Specification, at least at, page 7, lines 1-13 and page 8 lines 17-28, Figure 3; global solution 54) to a global optimization problem, the global solution comprising a first objective value for the

at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, (Specification, at least at, page 3, lines 11-15 and page 9 lines 18-26) the global solution comprising an option for resolving the computer-implemented multi-party negotiation, the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, (Specification, at least at, page 12, lines 1-27 and page 13 line 16 through page 14, line 4) the global solution being generated considering a fairness criterion (Specification, at least at, page 11, line 3 through page 12, line 7 and page 13, line 16 through page 14, line 4) specifying one of the following: that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) and that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion (Specification, at least at, page 9, line 27 through page 11, line 2).

C.   **Independent Claim 33**

Independent Claim 33 is directed towards software for multi-party constrained optimization. (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). The software embodied in a computer-readable medium and operable to, when executed

using a computer system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) to access a first optimization problem and a first threshold value corresponding to a first party to a negotiation, the first optimization problem (Specification, at least at, page 3, lines 5-8 and page 9 lines 6-26, Figure 2) comprising at least one first objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the first threshold value (Specification, at least at, page 9, lines 12-16) relates and one or more first constraints to which the at least one first objective relates(Specification, at least at, page 3, lines 5-23 and page 6, lines 23-37; Figure 2, constraints 36).

The software further operable to access a second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) and a second threshold value (Specification, at least at, page 9, lines 12-16) corresponding to a second party to the negotiation, (Specification, at least at, page 3, lines 8-11 and page 5, lines 2-16; Figures 1 and 2) the second optimization problem (Specification, at least at, page 3, lines 8-12 and page 9 lines 6-26, Figure 2) comprising at least one second objective (Specification, at least at, page 3, lines 5-15 and page 6, lines 18-31; Figure 2, objectives 34) to which the second threshold value (Specification, at least at, page 9, lines 12-16) relates and one or more second constraints to which the at least one second objective relates (Specification, at least at, page 3, lines 8-23 and page 6, lines 23-37; Figure 2, constraints 36).

The software still further operable to generate a global solution (Specification, at least at, page 7, lines 1-13 and page 8 lines 17-28, Figure 3; global solution 54) to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, (Specification, at least at, page 3, lines 11-15 and page 9 lines 18-26) the global solution comprising an option for resolving the computer-implemented multi-party negotiation, the global solution representing a first excess

between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, (Specification, at least at, page 12, lines 1-27 and page 13 line 16 through page 14, line 4) the global solution being generated considering a fairness criterion (Specification, at least at, page 11, line 3 through page 12, line 7 and page 13, line 16 through page 14, line 4) specifying one of the following: that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; (Specification, at least at, page 9, line 27 through page 11, line 2) and that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion (Specification, at least at, page 9, line 27 through page 11, line 2).

D.   Dependent Claims 11, 27, and 43

Dependent Claim 11 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). Dependent Claims 27 and 43 recite similar limitations. The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) collectively further operable to communicate one or more global solutions to the first party and the second party (Specification, at least at, page 7, lines 1-13 and page 8 lines 17-28, Figure 3; global solution 54), receive filtering information from the first party and the second party (Specification, at least at, page 14, line 24 through page 15, line 6), and use the filtering

information to determine one or more filtered global solutions from among the global solutions according to a filtering approach (Specification, at least at, page 8, lines 17-28, page 11 lines 19-32, page 13, line 16 through page 14, line 4, and page 15, lines 7-15, Figure 3; filtering stage 56 and filtered solutions 58).

E. **Dependent Claims 12, 28, and 44**

Dependent Claim 12 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). Dependent Claims 28 and 44 recite similar limitations. The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) wherein the filtering approach (Specification, at least at, page 8, lines 17-28, page 11 lines 19-32, and page 15, lines 7-15, Figure 3; filtered solutions 58) is selected from the group consisting of a veto approach (Specification, at least at, page 11, lines 3-18), a Pareto-optimal ranking approach (Specification, at least at, page 11, lines 3-18), an optimal weighted preferences approach (Specification, at least at, page 11, lines 3-18), and a mixed approach combining two or more of the above (Specification, at least at, page 11, lines 3-18).

F. **Dependent Claims 13, 29, and 45**

Dependent Claim 13 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). Dependent Claims 29 and 45 recite similar limitations. The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) collectively further operable to communicate one or more global solutions to the first party and the second party (Specification, at least at, page 7, lines 1-13 and page 8 lines 17-28, Figure 3; global solution 54), receive selection information from the first party and the second party (Specification, at least at, page 15, lines 7-15), and use the selection information to

determine a selected global solution from among the communicated global solutions according to a selection approach (Specification, at least at, page 8, lines 17-28, page 11 lines 19-32, and page 15, lines 7-15, Figure 3; selection stage 60 and selected solution 62).

G.   Dependent Claims 14, 30, and 46

Dependent Claim 14 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). Dependent Claims 30 and 46 recite similar limitations. The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) wherein the selection approach (Specification, at least at, page 8, lines 17-28, page 11 lines 19-32, and page 15, lines 7-15, Figure 3; selection stage 60 and selected solution 62) is selected from the group consisting of an auction approach (Specification, at least at, page 11, lines 19-32), and a random selection approach (Specification, at least at, page 11, lines 19-32).

H.   Dependent Claims 48-50

Dependent Claim 48 is directed towards a computer-implemented system for multi-party constrained optimization (Specification, at least at, page 5, lines 2-16; Figure 1, system 10). Dependent Claims 49 and 50 recite similar limitations. The system comprising one or more processing units and one or more memory units (Specification, at least at, page 6, lines 3-17; Figure 1, computers 20) collectively further operable to mediate at least a portion of a negotiation between the first party and a third party substantially simultaneously with the negotiation between the first party and the second party (Specification, at least at, page 3, lines 5-11 and page 5, lines 2-16; Figures 1 and 2).

Grounds of Rejection to be Reviewed on Appeal (37 C.F.R. § 41.37(c)(1)(vi)):

1.   Are Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 patentable under 35 U.S.C. § 103(a) over the Examiner's proposed combination of U.S. Patent 5,950,177 to Lupien, et al. ("*Lupien*") and U.S. Patent 5,495,412 to Thiessen ("*Thiessen*"), *Lupien* in view of *Thiessen* and further in view of an alleged obvious matter of design choice, and *Lupien* in view of *Thiessen* and further in view of alleged old and well known prior art, with *Lupien* as the primary reference?

2.   Are Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 patentable under 35 U.S.C. § 103(a) over the Examiner's proposed combination of *Thiessen* and *Lupien*, *Thiessen* in view of *Lupien* and further in view of an alleged obvious matter of design choice, and *Thiessen* in view of *Lupien* and further in view of alleged old and well known prior art, with *Thiessen* as the primary reference?

Argument (37 C.F.R. § 41.37(c)(1)(vii)):

Appellant has made an effort to group claims to reduce the burden on the Board. In the Argument section of this Appeal Brief, where appropriate, Appellant presents arguments as to why particular claims subject to a ground of rejection are separately patentable from other claims subject to the same ground of rejection. To reduce the number of groups and thereby reduce the burden on the Board, Appellant does not argue individually every claim that recites patentable distinctions over the references cited by the Examiner, particularly in light of the clear allowability of Appellant's independent claims. The claims of each group provided below may be deemed to stand or fall together for purposes of this Appeal.

Appellant has concluded that the claims may be grouped together as follows:

With regard to each ground of rejection identified above (issues 1 and 2), the claims subject to that ground of rejection may be grouped together as follows for purposes of this Appeal:

1.   Group 1 may include independent Claims 1, 17, and 33 and dependent Claims 2-3, 5-7, 10, 15, 18-19, 21-23,26, 31,34-35,37-39,42, and 47;

2.   Group 2 may include dependent Claims 11-12, 27-28, and 43-44, which depend from independent Claims 1, 17, and 33, respectively; and

3.   Group 3 may include dependent Claims 13-14 and 48, dependent Claims 29-30 and 49, and dependent Claims 45-46 and 50, which depend from independent Claims 1, 17, and 33, respectively.

The rejection of Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 under 35 U.S.C. § 103(a) as being unpatentable over the proposed *Lupien-Thiessen* combination (with *Lupien* as the primary reference) is improper and should be reversed by the Board. The rejection of Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 under 35 U.S.C. § 103(a) as being unpatentable over the proposed *Thiessen-*

Lupien combination (with *Thiessen* as the primary reference) is improper and should be reversed by the Board.

I.   The Claims are Patentable over the Proposed *Lupien-Thiessen* Combination

A.   Overview

Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 stand rejected under 35 U.S.C. 5 103(a) as being unpatentable over the Examiner's proposed *Lupien-Thiessen* combination, with *Lupien* as the primary reference. Appellant respectfully submits that the Examiner's proposed *Lupien-Thiessen* combination fails to support the obviousness rejections of Claims 1-3, 5-7, 10-1 5, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50. Appellant respectfully submits that these rejections are therefore improper and should be reversed by the Board.

B.   Standard

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. *See* 35 U.S.C. § 103(a). Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed below, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

The M.P.E.P. sets forth the strict legal standard for establishing a *prima facie* case of obviousness based on modification or combination of prior art references. "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references where combined) must teach or suggest all the claim

limitations." M.P.E.P. § 2142, 2143. The teaching, suggestion, or motivation for the modification or combination and the reasonable expectation of success must both be found in the prior art and cannot be based on an applicant's disclosure. *See Id.* (citations omitted). "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" at the time of the invention. M.P.E.P. 8 2143.01. Even the fact that references can be modified or combined does not render the resultant modification or combination obvious unless the prior art teaches or suggests the desirability of the modification or combination. *See Id.* (citations omitted). Moreover, "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. All words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. 5 2 143.03 (citations omitted).

The governing Federal Circuit case law makes this strict legal standard even more clear.[1] According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine or modify prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence." *Id.* Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills*, 916 F.2d at 682, 16 U.S.P.Q.2d at 1432. *See also In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (holding a *prima facie* case of obviousness not made where the combination of the

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[1] Note M.P.E.P. 2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

references taught every element of the claimed invention but did not provide a motivation to combine); *In Re Jones*, 958 F.2d 347, 351, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992) ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at" the claimed invention.). Even a determination that it would have been obvious to one of ordinary skill in the art at the time of the invention to try the proposed modification or combination is not sufficient to establish a *prima facie* case of obviousness. *See In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q .2d 1596, 1599 (Fed. Cir. 1988).

In addition, the M.P.E.P. and the Federal Circuit repeatedly warn against using an applicant's disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, "The tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." M.P.E.P. 8 2142. The governing Federal Circuit cases are equally clear. "A critical step in analyzing the patentability of claims pursuant to [35 U.S.C. §103] is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. . . . Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.'" *In re Kotzab*, 217 F.3d 1365, 1369, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (citations omitted). In *In re Kotzab*, the Federal Circuit noted that to prevent the use of hindsight based on the invention to defeat patentability of the invention, the court requires the Examiner to show a sufficient motivation in the prior art to combine the references that allegedly create the case of obviousness. *See id. See also, e.g., Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988). Similarly, in *In re Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board, explaining that the required evidence of such a teaching, suggestion, or motivation is essential to avoid impermissible hindsight reconstruction of an applicant's invention:

Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability-the essence of hindsight.

175 F.3d at 999, 50 U.S.P.Q.2d at 1617 (emphasis added) (citations omitted).

C.   Group 1 (Claims 1, 2-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42, and 47)

Claims 1, 2-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42, and 47 stand rejected under 35 U.S.C. 5 103(a) as being unpatentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these claims are clearly patentable over the proposed *Lupien-Thiessen* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 1, 2-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42, and 47 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in other claims. In addition, claims excluded from Group 1 that are subject to the same ground of rejection and that depend on independent Claims 1, 17, and 33, respectively, recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33 and cannot be properly grouped with independent Claims 1, 17, and 33 for purposes of this Appeal.

Appellant respectfully submits that the Examiner's proposed *Lupien-Thiessen* combination fails to support the obviousness rejections for at least two reasons. First, assuming that the proposed *Lupien-Thiessen* combination was proper, the proposed combination would still fail to disclose, teach, or suggest each and every limitation recited in the rejected claims. Second, the proposed *Lupien-Thiessen* combination is improper at least because the Examiner has not shown the required teaching, suggestion, or

motivation in the prior art to combine *Thiessen* with *Lupzen* in the manner the Examiner proposes.

1. The Proposed *Lupien-Thiessen* Combination Fails to Disclose, Teach, or Suggest Various Limitations Recited in Appellant's Claims

Appellant respectfully submits that the proposed *Lupien-Thiessen* combination fails to disclose, teach, or suggest various limitations recited in Appellant's claims. Appellant discusses independent Claim 1 as an example.

For example, the proposed *Lupien-Thiessen* combination fails to disclose, teach, or suggest at least the following limitations recited in Claim 1:

> *the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion specifying one of the following:*
> > *that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion;*
> > *that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion;*
> > *that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; and*
> > *that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion.*

The Examiner acknowledges that *Lupien* does not "show an option for dividing the excess satisfaction in one of the four claimed methods." (Final Office Action, Pages 2-3) However, the Examiner argues that *Thiessen* "shows dividing excess satisfaction to create equal satisfaction distribution." (*See* Final Office Action, Page 3) Appellant respectfully submits that *Thiessen* fails to make up for the acknowledged deficiencies of *Lupien*.

In fact, *Thiessen* even fails to disclose, teach, or suggest "the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion" specifying the manner in which the first and second excesses are to be distributed between the parties, as recited in Claim 1. As disclosing these limitations, the Examiner stated, without citation to any particular portion of *Thiessen*, that "*Thiessen* shows dividing excess satisfaction to create equal satisfaction distribution." (Final Office Action, Page 3) Appellant assumes that the Examiner was referring to Column 10, Lines 23-26 of *Thiessen*, which merely discloses generating "an equivalent alternative" as a set of values "that will provide each party with the same total satisfaction" in absolute terms.[2] However, nowhere does this portion, nor any other portion of *Thiessen*, disclose anything regarding excesses corresponding to thresholds which are to be fairly distributed to the parties according to a particular fairness criterion.   Thus, contrary to the Examiner's assertion, *Thiessen* necessarily fails to disclose, teach, or suggest "the global solution being generated considering a fairness criterion specifying *. . . that the first excess must equal the second excess*, the fairness criterion comprising an equal distribution criterion," as recited in Claim 1, much less any other fairness criterion recited in Claim 1.

Appellant presented substantially similar arguments in response to the Office Action mailed March 26, 2003. However, in the Final Office Action the Examiner did not provide any substantive response to this argument, but instead merely stated, without citation, that "*Thiessen* shows dividing excess satisfaction to create equal satisfaction distribution." (Final Office Action, Page 3) Appellant maintains that *Thiessen* fails to disclose, teach, or suggest these limitations and thus fails to make up for the acknowledged deficiencies of *Lupien*.

Furthermore, it is not at all clear that *Lupien* discloses, teaches, or suggests even the most basic elements recited in Claim 1. For example, the Examiner appears to equate

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[2] Appellant's assumption is based on the Examiner's rejection in the Office Action mailed March 26, 2003, of then-pending dependent Claims 24-25, which substantially corresponded to then-pending dependent Claims 8-9 and 40-41. In response to that Office Action, independent Claims 1, 17, and 33 were amended to incorporate certain limitations recited in these dependent claims. Curiously, however, the Examiner did not cite any particular portion of *Thiessen* in rejecting these amended portions of independent Claims 1, 17, and 33 in the Final Office Action. (*See* Final Office Action, Page 3)

"stock price" as disclosed in *Lupien* with the one or more first constraints and the one or more second constraints recited in Claim 1. (*See* Final Office Action, Page 2) Appellant respectfully submits that this equation is inappropriate. Stock price (e.g., as shown on the y-axis of at least Figures 2 and 3A-3D of *Lupien* and as disclosed throughout *Lupien*) is not a constraint; it is merely a variable that may be used to **create** a constraint. Similarly, quantity (e.g., as shown on the x-axis of at least Figures 2 and 3A-3D of *Lupien* and as disclosed throughout *Lupien*) is not a constraint; it is merely a variable that may be used to **create** a constraint. The Examiner refers to Figure 3 of *Lupien* to support the equation of stock price as disclosed in *Lupien* with the constraints recited in Claim 1. However, the only constraint reflected in Figures 3A-3D of *Lupien* is one created using stock price (i.e. that stock price be less than or greater than some value for a given quantity to achieve an acceptable level of satisfaction). That constraint (that stock price be less than or greater than some value for a given quantity) simply devolves into a threshold value of price, given a quantity, to achieve an acceptable level of satisfaction. In contrast, Appellant's Claim 1 recites constraints distinct from threshold values. For example, Claim 1 recites in part:

- a first optimization problem and a first threshold value corresponding to a first party to a negotiation, the first optimization problem comprising at least one first objective to which the first threshold relates and one or more first constraints to which the at least one first objective relates; and

- a second optimization problem and a second threshold value corresponding to a second party to a negotiation, the second optimization problem comprising at least one second objective to which the second threshold relates and one or more second constraints to which the at least one second objective relates.

As the above discussion shows, *Lupien* clearly fails to disclose, teach, or suggest constraints distinct from threshold values in the manner recited in Claim 1. Thus, the Examiner's attempted equation of stock price as disclosed in *Lupien* with the one or more first constraints and the one or more second constraints recited in Claim 1 is clearly inappropriate.

As a result of these deficiencies of *Lupien*, *Lupien* also necessarily fails to disclose, teach, or suggest, at a minimum, generating "a global solution to a global optimization problem, the global solution comprising a first objective value for the at least one first

objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with value the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value," as recited in Claim 1. Furthermore, in attempting to apply *Lupien* to Claim 1, the Examiner did not even attempt to cite to any portion of *Lupien* as disclosing "the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective," as recited in Claim 1. (*See* Office Action, Page 2)

Thus, beyond the glaring deficiencies discussed above with respect to the first and second excesses and the fairness criterion recited in Claim 1, *Lupien* (and therefore the proposed *Lupien-Thiessen* combination) fails to disclose, teach, or suggest various other basic elements recited in Claim 1, making *Lupien* wholly inadequate as a primary reference against Claim 1.

For at least these reasons, Appellant respectfully submits that the proposed *Lupien-Thiessen* combination clearly fails to disclose, teach, or suggest various limitations recited in independent Claim 1. For at least analogous reasons, Appellant respectfully submits that the proposed *Lupien-Thiessen* combination clearly fails to disclose, teach, or suggest various limitations recited in independent Claims 17 and 33. Appellant respectfully submits that independent Claims 1, 17, and 33 and their dependent claims are allowable for at least these reasons.

2. The Proposed *Lupien-Thiessen* Combination is Improper

Appellant respectfully submits that the Examiner has not demonstrated the required teaching, suggestion, or motivation in *Lupien*, *Thiessen*, or knowledge generally available to one of ordinary skill in the art at the time of Appellant's invention to combine or modify these references in the manner the Examiner proposes. Thus, Appellant respectfully submits that the proposed *Lupien-Thiessen* combination is improper and that Appellant's claims are allowable for at least this additional reason.

Appellant respectfully directs the Board's attention to the heavy burden incumbent on the Examiner for demonstrating a prima facie case of obviousness, discussed above in Section I.B. Appellant respectfully submits that the Examiner has not met this burden.

With regard to the proposed *Lupien-Thiessen* combination, the Examiner stated, "It would have been obvious to one of ordinary skill in the art to modify the method of *Lupien et al.* by dividing excess satisfaction in order to assure users of an equitable marketplace." (Final Office Action, Page 3) Appellant first notes that the concept of "excess satisfaction" is not even discussed in *Lupien*, which even the Examiner essentially acknowledges. (*See* Final Office Action, Pages 2-3, at which the Examiner does not cite to any portions of *Lupien* as disclosing "excess satisfaction") For this reason alone, Appellant respectfully submits that the Examiner's purported motivation for combining these references is highly presumptive. Moreover, nothing in *Lupien* or *Thiessen* teaches, suggests, or motivates the proposed combination, nor has the Examiner provided specific evidence that purportedly teaches, suggests, or motivates the proposed combination. Merely reciting an alleged advantage that might be achieved by combining the teachings of two references (assuming that combination is even technologically possible) is insufficient to demonstrate the required teaching, suggestion, or motivation to combine references under the M.P.E.P. and governing Federal Circuit decisions.

Additionally, Appellant respectfully notes, "[T]he factual inquiry whether to combine references must be thorough and searching." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001). Thus, the burden is on the Examiner to identify concrete evidence in the record to support his conclusion that it would have been obvious to modify the teachings of the cited references to achieve the claimed invention. See, *In re Kotzab*, 217 F.3d 1365, 1370, 55 U.S.P.Q.2d 1313, 1316-17 (Fed. Cir. 2000). The Examiner's conclusory assertion that it would have been obvious to combine *Lupien* with *Thiessen* fails to provide a thorough and searching factual inquiry and does not identify any concrete evidence in the record for combining these references in the manner proposed by the Examiner.

Accordingly, since the prior art fails to provide the required teaching, suggestion, or motivation to combine *Lupien* with *Thiessen* in the manner the Examiner proposes, Appellant respectfully submits that the Examiner's conclusions set forth in the Final Office Action fall well short of the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness. Thus, Appellant respectfully submits that the Examiner's proposed modification of *Lupien* with alleged teachings of *Thiessen* appears to be merely an attempt, in hindsight and with the benefit of Appellant's claims as a blueprint, to reconstruct Appellant's claims and is unsupported by the teachings of *Lupien* or *Thiessen*.

For at least these reasons, Appellant respectfully submits that the proposed *Lupien-Thiessen* combination is improper and fails to support a *prima facie* case of obviousness. Appellant respectfully submits that independent Claims 1, 17, and 33 and their dependent claims are allowable for at least this additional reason.

3. Conclusion Regarding Group 1

For at least these reasons, the proposed *Lupien-Thiessen* combination fails to support the obviousness rejection of independent Claim 1 and its dependent claims. For at least analogous reasons, the proposed *Lupien-Thiessen* combination fails to support the obviousness rejection of independent Claims 17 and 33 and their dependent claims. These claims are therefore patentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

D. *Group 2 (Claims 11-12, 27-28, and 43-44)*

Claims 11-12, 27-28, and 43-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these claims are clearly patentable over the proposed *Lupien-Thiessen* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 11-12, 27-28, and 43-44 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in the claims of other groups and cannot be properly grouped with the claims of other groups for purposes of this Appeal. For example, these claims recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33.

Dependent Claims 11-12, 27-28, and 43-44 depend from independent Claims 1, 17, and 33, respectively, which Appellant has shown above to be clearly patentable over the proposed *Lupien-Thiessen* combination, and are allowable for at least this reason. Furthermore, in addition to those reasons discussed above with reference to independent Claims 1, 17, and 33, dependent Claims 11-12, 27-28, and 43-44 recite further patentable distinctions over the proposed *Lupien-Thiessen* combination.

For example, neither *Lupien* nor *Thiessen* discloses, teaches, or suggests receiving "filtering information from the first party and the second party" and using "the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach," as recited in Claims 11, 27, and 43. The Examiner stated that *Thiessen* discloses "communicating possible alternative solutions to the parties, and receiving and applying filtering information comprising a weighted preferences approach from the parties," that *Thiessen* does not disclose "accomplishing these steps after computation of the global solution," but that "it would have been an obvious matter of design choice to modify the method of *Thiessen* by accomplishing the filtering steps after the global solution has been computed since applicant does not state that accomplishing the filtering in this manner at this time if for any particular reason . . . and it appears that the method would work equally well in either configuration." (Final Office Action, Page 4)

First, Appellant respectfully notes that a conclusory statement, necessarily involving speculation in hindsight with the benefit of Appellant's claims as a blueprint, that "it would have been an obvious matter of design choice" is insufficient under the M.P.E.P. and governing Federal Circuit case law.

Second, contrary to the Examiner's assertions, Appellant's Specification explicitly provides one or more reasons for receiving "filtering information from the first party and the second party" and using "the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach," as recited in Claims 11, 27, and 43. For example, as explicitly described in the Specification, a solution filtering stage 56 may be performed "to discard any unacceptable discovered global solutions 54 and generate a set of one or more filtered solutions 58" and to allow a solution selection stage 60 "to select a single global solution 54 from among the filtered solutions 58 and generate a set of one or more selected solutions 62." (Page 8, Lines 23-26) It is axiomatic that filtering of global solutions must be performed after the global solutions have been generated. Furthermore, also as explicitly described in the Specification, filtering stage 56 may allow parties 12 to, for example: (1) veto global solutions 54; (2) rank global solutions 54 such that global solution 54 lacking Pareto-optimal rankings are discarded; (3) provide values for global solutions 54 indicating the relative strength of their preferences for global solutions 54 such that global solutions 54 that optimize the total weight are determined and remaining global solutions 54 are discarded; and (4) combine two or more of the above. (Page 11, Lines 3-12) Aspects relating to these alternatives are recited in Claims 12, 28, and 44, which depend on Claims 11, 27, and 43, respectively.

Moreover, Appellant respectfully submits that there is no required teaching, suggestion, or motivation to modify *Thiessen* (or *Lupien*) to include the recited features, if such were even possible, especially in light of the stringent standards for doing so under the M.P.E.P. and governing Federal Circuit case law.

For at least these reasons, the proposed *Lupien-Thiessen* combination fails support the obviousness rejection of dependent Claims 11-12, 27-28, and 43-44. These claims are therefore patentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

E.   Group 3 (Claims 13-14, 29-30, 45-46, and 48-50)

Claims 13-14, 29-30, 45-46, and 48-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these claims are clearly patentable over the proposed *Lupien-Thiessen* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 13-14, 29-30, 45-46, and 48-50 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in the claims of other groups and cannot be properly grouped with the claims of other groups for purposes of this Appeal. For example, these claims recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33.

Dependent Claims 13-14 and 48 (which depend from independent Claim 1), dependent Claims 29-30 and 49 (which depend from independent Claim 17), and dependent Claims 45-46 and 50 (which depend from independent Claim 33), depend from independent claims that Appellant has shown above to be clearly patentable over the proposed *Lupien-Thiessen* combination, and are allowable for at least this reason. Furthermore, in addition to those reasons discussed above with reference to independent Claims 1, 17, and 33, dependent Claims 13-14, 29-30, 45-46, and 48-50 recite further patentable distinctions over the proposed *Lupien-Thiessen* combination.

For example, neither *Lupien* nor *Thiessen* discloses, teaches, or suggests using "the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach," as recited in Claims 13, 29, and 45, or the selection approach being selected from the group consisting of "an auction approach" and "a random selection approach," as recited in Claims 14, 30, and 46. The Examiner admitted that *Thiessen* "does not disclose choosing the solution via an auction approach." (Final Office Action, Page 4) Appellant respectfully submits that there is no teaching, suggestion, or motivation to modify *Thiessen* (or *Lupien*) to include these features, if such were even possible, especially in light of the stringent standards for doing so set forth above. Appellant again respectfully notes that a conclusory statement,

necessarily involving speculation in hindsight with the benefit of Appellant's claims as a blueprint, that "it would have been obvious" is insufficient under the M.P.E.P. and governing Federal Circuit case law.

For at least these reasons, the proposed *Lupien-Thiessen* combination fails support the obviousness rejection of dependent Claims 13-14, 29-30, 45-46, and 48-50. These claims are therefore patentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

II.   The Claims are Patentable over the Proposed *Thiessen-Lupien* Combination

A.   Overview

Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50 stand rejected under 35 U.S.C. $ 103(a) as being unpatentable over the Examiner's proposed *Thiessen-Lupien* combination, with *Thiessen* as the primary reference. Appellant respectfully submits that the Examiner's proposed *Thiessen-Lupien* combination fails to support the obviousness rejections of Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-50. Appellant respectfully submits that these rejections are therefore improper and should be reversed by the Board.

B.   Standard

Appellant respectfully directs the Board's attention to Section I.B above, which discusses the heavy burden incumbent on the Examiner for demonstrating a *prima-facie* case of obviousness.

C.   Group 1 (Claims 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 31, 33-35, 37-39, 42, and 47)

Claims 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 3 1, 33-35, 37-39, 42, and 47 stand rejected under 35 U.S.C. 5 103(a) as being unpatentable over the proposed *Thiessen-Lupien* combination. Appellant respectfully submits that these claims are clearly

patentable over the proposed *Thiessen-Lupien* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 1-3, 5-7, 10, 15, 17-19, 21-23, 26, 3 1, 33-35, 37-39, 42, and 47 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in other claims. In addition, claims excluded from Group 1 that are subject to the same ground of rejection and that depend on independent Claims 1, 17, and 33, respectively, recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33 and cannot be properly grouped with independent Claims 1, 17, and 33 for purposes of this Appeal.

Appellant respectfully submits that the Examiner's proposed *Thiessen-Lupien* combination fails to support the obviousness rejections for at least two reasons. First, assuming that the proposed *Thiessen-Lupien* combination was proper, the proposed combination would still fail to disclose, teach, or suggest each and every limitation recited in the rejected claims. Second, the proposed *Thiessen-Lupien* combination is improper at least because the required teaching, suggestion, or motivation to combine *Lupien* with *Thiessen* is lacking.

1. The Proposed *Thiessen-Lupien* Combination Fails to Disclose, Teach, or Suggest Various Limitations Recited in Appellant's Claims

Appellant respectfully submits that the proposed Thiessen-Lupien combination fails to disclose, teach, or suggest various limitations recited in Appellant's claims. Thus, Appellant respectfully submits that Appellant's claims are allowable for at least this reason.

To avoid burdening the record, Appellant respectfully directs the Boards attention to Section I.C.1 above, which discusses example deficiencies of the Examiner's proposed *Lupien-Thiessen* combination vis-a-vis Appellant's independent Claim 1. These deficiencies exist whether *Lupien* or *Thiessen* is considered the primary reference.

For example, Appellant reiterates that *Thiessen* fails to disclose, teach, or suggest at least the following limitations recited in independent Claim 1, for example:

> *the global solution representing a first excess between the fist objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion specifying one of the following:*
>> *that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion;*
>> *that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion;*
>> *that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; and*
>> *that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion.*

The Examiner acknowledged that *Lupien* fails to teach these limitations. (*See* Final Office Action, Page 2) Thus, the proposed *Thiessen-Lupien* combination clearly fails to disclose, teach, or suggest these limitations.

Additionally, the Examiner acknowledged that "*Thiessen* does not explicitly show the first constraint related to the first objective, the second constraint related to the second objective, or that the first and second objective values of the global solution are consistent with the first and second constraints." (Final Office Action, Page 5) However, the Examiner argued that *Lupien* does show these limitations. As discussed above in Section I.C.1, Appellant respectfully submits that the Examiner's attempted equation of stock price as disclosed in *Lupien* with the one or more first constraints and the one or more second constraints recited in Claim 1 collapses under scrutiny. Thus, *Lupien* clearly fails to make up for at least these acknowledged deficiencies of *Thiessen*.

For at least these reasons, Appellant respectfully submits that the proposed *Thiessen-Lupien* combination clearly fails to disclose, teach, or suggest various limitations recited in independent Claim 1. For at least analogous reasons, Appellant respectfully submits that the proposed *Thiessen-Lupien* combination clearly fails to disclose, teach, or suggest various limitations recited in independent Claims 17 and 33. Appellant respectfully submits that independent Claims 1, 17, and 33 and their dependent claims are allowable for at least these reasons.

2.   **The Proposed *Thiessen-Lupien* Combination is Improper**

Appellant respectfully submits that the Examiner has not demonstrated the required teaching, suggestion, or motivation in *Thiessen*, *Lupien*, or in the knowledge generally available to one of ordinary skill in the art at the time of Appellant's invention to combine or modify these references in the manner the Examiner proposes. Thus, Appellant respectfully submits that the proposed *Thiessen-Lupien* combination is improper and that Appellant's claims are allowable for at least this additional reason.

Appellant respectfully directs the Board's attention to the heavy burden incumbent on the Examiner for demonstrating a *prima facie* case of obviousness, discussed above in Section I.B. Appellant respectfully submits that the Examiner has not met this burden.

With regard to the proposed *Thiessen-Lupien* combination as applied to independent Claim 1, the Examiner acknowledged that *Thiessen* "does not show the first constraint related to the first objective, the second constraint related to the second objective, or that the first and second objective values of the global solution are consistent with the first and second constraints." (Final Office Action, Page 5) However, the Examiner argued that *Lupien* does disclose these limitations and stated, "It would have been obvious to one of ordinary skill in the art to modify the method of *Thiessen* by introducing the first and second constraints and having the global solution be consistent with those constraints in order to allow a plurality of variables to be considered and satisfied at one time." (Final Office Action, Page 5) Appellant respectfully submits that nothing in *Thiessen* or *Lupien* teaches, suggests, or motivates the proposed combination,

nor has the Examiner provided specific evidence that purportedly teaches, suggests, or motivates the proposed combination. Merely reciting an alleged advantage that might be achieved by combining the teachings of two references (assuming that combination is even technologically possible) is insufficient to demonstrate the required teaching, suggestion, or motivation to combine references under the M.P.E.P. and governing Federal Circuit decisions.

Additionally, Appellant respectfully notes, "[T]he factual inquiry whether to combine references must be thorough and searching." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001). Thus, the burden is on the Examiner to identify concrete evidence in the record to support his conclusion that it would have been obvious to modify the teachings of the cited references to achieve the claimed invention. *See*, *In re Kotzab*, 217 F.3d 1365, 1370, 55 U.S.P.Q.2d 1313, 1316-17 (Fed. Cir. 2000). The Examiner's conclusory assertion that it would have been obvious to combine *Thiessen* with *Lupien* fails to provide a thorough and searching factual inquiry and does not identify any concrete evidence in the record for combining these references in the manner proposed by the Examiner.

Accordingly, since the prior art fails to provide the required teaching, suggestion, or motivation to combine *Thiessen* with *Lupien* in the manner the Examiner proposes, Appellant respectfully submits that the Examiner's conclusions set forth in the Final Office Action fall well short of the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness. Thus, Appellant respectfully submits that the Examiner's proposed modification of *Thiessen* with alleged teachings of *Lupien* appears to be merely an attempt, in hindsight and with the benefit of Appellant's claims as a blueprint, to reconstruct Appellant's claims and is unsupported by the teachings of *Thiessen* or *Lupien* .

For at least these reasons, Appellant respectfully submits that the proposed *Thiessen-Lupien* combination is improper and fails to support a prima facie case of obviousness. Appellant respectfully submits that independent Claims 1, 17, and 33 and their dependent claims are allowable for at least this additional reason.

3. Conclusion Regarding Group 1

For at least these reasons, the proposed *Thiessen-Lupien* combination fails support the obviousness rejection of independent Claim 1 and its dependent claims. For at least analogous reasons, the proposed *Thiessen-Lupien* combination fails to support the obviousness rejection of independent Claims 17 and 33 and their dependent claims. These claims are therefore patentable over the proposed *Thiessen-Lupien* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

D. Group 2 (Claims 11-12, 27-28, and 43-44)

Claims 11-12, 27-28, and 43-44 stand rejected under 35 U.S.C. 5 103(a) as being unpatentable over the proposed *Thiessen-Lupien* combination. Appellant respectfully submits that these claims are clearly patentable over the proposed *Thiessen-Lupien* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 11-12, 27-28, and 43-44 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in the claims of other groups and cannot be properly grouped with the claims of other groups for purposes of this Appeal. For example, these claims recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33.

Dependent Claims 11-12, 27-28, and 43-44 depend from independent Claims 1, 17, and 33, respectively, which Appellant has shown above to be clearly patentable over the proposed *Thiessen-Lupien* combination, and are allowable for at least this reason. Furthermore, in addition to those reasons discussed above with reference to independent Claims 1, 17, and 33, dependent Claims 11-12, 27-28, and 43-44 recite further patentable distinctions over the proposed *Thiessen-Lupien* combination.

The Examiner's basis for rejecting Claims 11-12, 27-28, and 43-44 based on the proposed *Thiessen-Lupien* combination (*see* Final Office Action, Pages 6-7) was substantially the same as the Examiner's basis for rejecting these claims based on the proposed *Lupien-Thiessen* combination (see Final Office Action, Page 4). Thus, to avoid burdening the record, Appellant respectfully directs the Board's attention to Section 1.D above, which establishes the clear allowability of Claims 11-12, 27-28, and 43-44 over the combination of *Thiessen* and *Lupien*, regardless of which reference is considered the primary reference.

For at least these reasons, the proposed *Thiessen-Lupien* combination fails support the obviousness rejection of dependent Claims 11-12, 27-28, and 43-44. These claims are therefore patentable over the proposed *Thiessen-Lupien* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

E.   Group 3 (Claims 13-14, 29-30, 45-46, and 48-50)

Claims 13-14, 29-30, 45-46, and 48-50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the proposed *Lupien-Thiessen* combination. Appellant respectfully submits that these claims are clearly patentable over the proposed *Lupien-Thiessen* combination. Thus, Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

Claims 13-14, 29-30, 45-46, and 48-50 are separately patentable from every other claim subject to the same ground of rejection. These claims recite limitations that are substantially different from limitations recited in the claims of other groups and cannot be properly grouped with the claims of other groups for purposes of this Appeal. For example, these claims recite patentable distinctions over the prior art beyond those recited in independent Claims 1, 17, and 33.

Dependent Claims 13-14 and 48 (which depend from independent Claim 1), dependent Claims 29-30 and 49 (which depend from independent Claim 17), and dependent Claims 45-46 and 50 (which depend from independent Claim 33), depend from

independent claims which Appellant has shown above to be clearly patentable over the proposed *Lupien-Thiessen* combination, and are allowable for at least this reason. Furthermore, in addition to those reasons discussed above with reference to independent Claims 1, 17, and 33, dependent Claims 13-14, 29-30, 45-46, and 48-50 recite further patentable distinctions over the proposed *Lupien-Thiessen* combination.

The Examiner's basis for rejecting Claims 13-14, 29-30, 45-46, and 48-50 based on the proposed *Thiessen-Lupien* combination (see Final Office Action, Page 7) was substantially the same as the Examiner's basis for rejecting these claims based on the proposed *Lupien-Thiessen* combination (see Final Office Action, Page 4). Thus, to avoid burdening the record, Appellant respectfully directs the Board's attention to Section 1.E above, which establishes the clear allowability of Claims 13-14, 29-30, 45-46, and 48-50 over the combination of *Thiessen* and *Lupien*, regardless of which reference is considered the primary reference.

For at least these reasons, the proposed *Thiessen-Lupien* combination fails support the obviousness rejection of dependent Claims 13-14, 29-30, 45-46, and 48-50. These claims are therefore patentable over the proposed *Thiessen-Lupien* combination. Appellant respectfully submits that these rejections are improper and should be reversed by the Board.

CONCLUSION:

Accordingly, for at least the reasons discussed above, Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-63 cannot be anticipated by the cited references. For at least these reasons, Appellant respectfully requests reversal of the Examiner's rejection of Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-63 and request allowance of Claims 1-3, 5-7, 10-15, 17-19, 21-23, 26-31, 33-35, 37-39, and 42-63.

No fees are deemed to presently be necessary; however, the undersigned hereby authorizes the Director to charge any fees that may be required, or credit any overpayments, to **Deposit Account No. 500777**. If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed. Any fee required for such Petition for Extension of Time and any other fee required by this document and not submitted herewith should be charged to **Deposit Account No. 500777**. Any refund should be credited to **Deposit Account No. 500777**.

Please link this application to Customer No. 53184 so that its status may be checked via the PAIR System.

Respectfully submitted,

8 May 2007   /Steven J. Laureanti/signed
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<u>Claims Appendix</u>
<u>(37 C.F.R. § 41.37(c)(1)(viii))</u>

1.   **(Previously Presented)** A computer-implemented system for multi-party constrained optimization, the system comprising one or more processing units and one or more memory units collectively operable to:

access a first optimization problem and a first threshold value corresponding to a first party to a negotiation, the first optimization problem comprising at least one first objective to which the first threshold value relates and one or more first constraints to which the at least one first objective relates;

access a second optimization problem and a second threshold value corresponding to a second party to the negotiation, the second optimization problem comprising at least one second objective to which the second threshold value relates and one or more second constraints to which the at least one second objective relates;

generate a global solution to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with value the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion specifying one of the following:

that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; and

that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion.

2.   **(Previously Presented)** The system of Claim 1, wherein the first optimization problem is received from the first party and comprises at least a portion of a constrained optimization problem (COP) for the first party, the COP comprising at least the first objective.

3.   **(Previously Presented)** The system of Claim 2, wherein the COP further comprises at least one constraint relating to one or more global variables.

4.   **(Canceled)**

5.   **(Previously Presented)** The system of Claim 1, wherein the global optimization problem comprises a linear programming (LP) problem.

6.   **(Previously Presented)** The system of Claim 1, wherein the first objective value exceeds the first threshold value and the second objective value exceeds the second threshold value.

7.   **(Previously Presented)** The system of Claim 1, further operable to generate the global solution as a Pareto-optimal solution.

8. **(Canceled)**

9. **(Canceled)**

10. **(Previously Presented)** The system of Claim 1, further operable to access an additional first threshold value for the first party, access an additional second threshold value for the second party, and generate an additional global solution satisfying the additional first threshold value and the additional second threshold value.

11. **(Previously Presented)** The system of Claim 1, further operable to:

communicate one or more global solutions to the first party and the second party;

receive filtering information from the first party and the second party;

use the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach.

12. **(Previously Presented)** The system of Claim 11, wherein the filtering approach is selected from the group consisting of:

a veto approach;

a Pareto-optimal ranking approach;

an optimal weighted preferences approach; and

a mixed approach combining two or more of the above.

13.   **(Previously Presented)** The system of Claim 1, further operable to:

communicate one or more global solutions to the first party and the second party;

receive selection information from the first party and the second party; and

use the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach.

14.   **(Previously Presented)** The system of Claim 13, wherein the selection approach is selected from the group consisting of:

an auction approach; and

a random selection approach.

15.   **(Previously Presented)** The system of Claim 1, further operable to mediate at least a portion of a negotiation between the first party and a third party substantially simultaneously with the negotiation between the first party and the second party.

16.   **(Canceled)**

17.   **(Previously Presented)** A computer-implemented method for multi-party constrained optimization, the method performed using a computer system comprising one or more processing units and one or more memory units, the method comprising:

using the computer system, accessing a first optimization problem and a first threshold value corresponding to a first party to a negotiation, the first optimization problem comprising at least one first objective to which the first threshold value relates and one or more first constraints to which the at least one first objective relates;

using the computer system, accessing a second optimization problem and a second threshold value corresponding to a second party to the negotiation, the second optimization problem comprising at least one second objective to which the second threshold value relates and one or more second constraints to which the at least one second objective relates; and

using the computer system, generating a global solution to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, the global solution comprising an option for resolving the computer-implemented multi-party negotiation, the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion specifying one of the following:

that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; and

that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion.

18. **(Original)** The method of Claim 17, further comprising receiving the first optimization problem from the first party, the first optimization problem comprising at least a portion of a constrained optimization problem (COP) for the first party, the COP comprising at least the first objective.

19. **(Original)** The method of Claim 18, wherein the COP further comprises at least one constraint relating to one or more global variables.

20. **(Canceled)**

21. **(Previously Presented)** The method of Claim 17, wherein the global optimization problem comprises a linear programming (LP) problem.

22. **(Previously Presented)** The method of Claim 17, wherein the first objective value exceeds the first threshold value and the second objective value exceeds the second threshold value.

23. **(Previously Presented)** The method of Claim 17, wherein the global solution is generated as a Pareto-optimal solution.

24.   **(Canceled)**

25.   **(Canceled)**

26.   **(Previously Presented)** The method of Claim 17, further comprising:

accessing an additional first threshold value for the first party;

accessing an additional second threshold value for the second party; and

generating an additional global solution satisfying the additional first threshold value and the additional second threshold value.

27.   **(Previously Presented)** The method of Claim 17, further comprising:

communicating one or more global solutions to the first party and the second party;

receiving filtering information from the first party and the second party;

using the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach.

28. (Original) The method of Claim 27, wherein the filtering approach is selected from the group consisting of:

a veto approach;

a Pareto-optimal ranking approach;

an optimal weighted preferences approach; and

a mixed approach combining two or more of the above.

29.   **(Previously Presented)** The method of Claim 17, further comprising:

communicating one or more global solutions to the first party and the second party;

receiving selection information from the first party and the second party;

use the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach.

30.   **(Original)** The method of Claim 29, wherein the selection approach is selected from the group consisting of:

an auction approach; and

a random selection approach.

31.   **(Original)** The method of Claim 17, further comprising mediating at least a portion of a negotiation between the first party and a third party substantially simultaneously with the negotiation between the first party and the second party.

32.   **(Canceled)**

33.   **(Previously Presented)** Software for multi-party constrained optimization, the software embodied in a computer-readable medium and operable to, when executed using a computer system comprising one or more processing units and one or more memory units:

access a first optimization problem and a first threshold value corresponding to a first party to a negotiation, the first optimization problem comprising at least one first objective to which the first threshold value relates and one or more first constraints to which the at least one first objective relates;

access a second optimization problem and a second threshold value corresponding to

a second party to the negotiation, the second optimization problem comprising at least one second objective to which the second threshold value relates and one or more second constraints to which the at least one second objective relates;

generate a global solution to a global optimization problem, the global solution comprising a first objective value for the at least one first objective and a second objective value for the at least one second objective such that the first and second objective values are consistent with the one or more first constraints, the first threshold value, the one or more second constraints, and the second threshold value, the global solution comprising an option for resolving the computer-implemented multi-party negotiation, the global solution representing a first excess between the first objective value and the first threshold value and a second excess between the second objective value and the second threshold value, the global solution being generated considering a fairness criterion specifying one of the following:

that the first excess must equal the second excess, the fairness criterion comprising an equal distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of the first threshold value to the second threshold value, the fairness criterion comprising a geometric distribution criterion;

that a ratio of the first excess to the second excess must equal a ratio of a first weight for the first party to a second weight for the second party, the fairness criterion comprising a weighted distribution criterion; and

that a ratio of the first objective value to the first threshold value must equal a first weight for the first party and a ratio of the second objective value to the second threshold value must equal a second weight for the second party, the fairness criterion comprising a weighted geometric distribution criterion.

34.   **(Original)** The software of Claim 33, wherein the first optimization problem is received from the first party and comprises at least a portion of a constrained optimization problem (COP) for the first party, the COP comprising at least the first objective.

35.   **(Original)** The software of Claim 34, wherein the COP further comprises at least one constraint relating to one or more global variables.

36.   **(Canceled)**

37.   **(Previously Presented)** The software of Claim 33, wherein the global optimization problem comprises a linear programming (LP) problem.

38.   **(Previously Presented)** The software of Claim 33, wherein the first objective value exceeds the first threshold value, and the second objective value exceeds the second threshold value.

39.   **(Original)** The software of Claim 33, further operable to generate the global solution as a Pareto-optimal solution.

40.   **(Canceled)**

41.   **(Canceled)**

42.   **(Previously Presented)** The software of Claim 33, further operable to access an additional first threshold value from the first party, access an additional second threshold value from the second party, and generate an additional global solution satisfying the additional first threshold value and the additional second threshold value.

43.   **(Previously Presented)** The software of Claim 33, further operable to:

communicate one or more global solutions to the first party and the second party;

receive filtering information from the first party and the second party;

use the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach.

44.   **(Original)** The software of Claim 43, wherein the filtering approach is selected from the group consisting of:

a veto approach;

a Pareto-optimal ranking approach;

an optimal weighted preferences approach; and

a mixed approach combining two or more of the above.

45. **(Previously Presented)** The software of Claim 33, further operable to:

communicate one or more global solutions to the first party and the second party;

receive selection information from the first party and the second party;

use the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach.

46. **(Original)** The software of Claim 45, wherein the selection approach is selected from the group consisting of:

an auction approach; and

a random selection approach.

47. **(Original)** The software of Claim 33, further operable to mediate at least a portion of a negotiation between the first party and a third party substantially simultaneously with the negotiation between the first party and the second party.

48. **(Previously Presented)** The system of Claim 13, wherein the one or more communicated global solutions comprise a filtered global solution determined from among one or more global solutions according to a filtering approach using filtering information received from the first and second parties.

49. **(Previously Presented)** The method of Claim 29, wherein the one or more communicated global solutions comprise a filtered global solution determined from among one or more global solutions according to a filtering approach using filtering information received from the first and second parties.

50.   **(Previously Presented)** The software of Claim 45, wherein the one or more communicated global solutions comprise a filtered global solution determined from among one or more global solutions according to a filtering approach using filtering information received from the first and second parties.

51.   **(Withdrawn)** A computer-implemented method for multi-party constrained optimization, the method performed using a computer system comprising one or more processing units and one or more memory units, the method comprising:

using the computer system, accessing a first optimization problem corresponding to a first party to a negotiation, the first optimization problem comprising at least one first objective and one or more first constraints-to which the first objective relates;

using the computer system, accessing a second optimization problem corresponding to a second party to the negotiation, the second optimization problem comprising at least one second objective and one or more second constraints to which the second objective relates;

using the computer system, determining a first optimal value for the at least one first objective considering the one or more first constraints for the first optimization problem;

using the computer system, determining a second optimal value for the at least one second objective considering the one or more second constraints for the second optimization problem; and

using the computer system, generating a global solution to a global optimization problem such that the global solution is consistent with the at least one first objective, the one or more first constraints, the at least one second objective, and the one or more second constraints, the global solution comprising an option for resolving the computer-implemented multi-party negotiation, the global solution representing a first excess between the global solution and the first optimal value and a second excess between the global solution and the second optimal value, the global solution being generated considering a fairness criterion specifying that the first excess is to minimally deviate from the first optimal value and that the second excess is to minimally deviate from the second optimal value considering the one or more first constraints and the one or more second constraints.

52.   **(Withdrawn)** The method of Claim 5 1, further comprising receiving the first optimization problem from the first party, the first optimization problem comprising at least a portion of a constrained optimization problem (COP) for the first party, the COP comprising at least the first objective.

53.   **(Withdrawn)** The method of Claim 52, wherein the COP further comprises at least one constraint relating to one or more global variables.

54.   **(Withdrawn)** The method of Claim 51, wherein the global optimization problem comprises a linear programming (LP) problem.

55.   **(Withdrawn)** The method of Claim 5 1, further comprising:

accessing one or more first threshold values for the first party;

accessing one or more second threshold values for the second party; and

generating the global solution consistent with the one or more first threshold values and the one or more second threshold values.

56.   **(Withdrawn)** The method of Claim 55, wherein the first objective value exceeds the one or more first threshold values accessed for the first party and the second objective value exceeds the one or more second threshold values accessed for the second party.

57.   **(Withdrawn)** The method of Claim 51, wherein the global solution is generated as a Pareto-optimal solution.

58.   **(Withdrawn)** The method of Claim 51, further comprising:

communicating one or more global solutions to the first party and the second party;

receiving filtering information from the first party and the second party;

using the filtering information to determine one or more filtered global solutions from among the global solutions according to a filtering approach.

59.   **(Withdrawn)** The method of Claim 58, wherein the filtering approach is selected from the group consisting of:

a veto approach;

a Pareto-optimal ranking approach;

an optimal weighted preferences approach; and

a mixed approach combining two or more of the above.

60.   **(Withdrawn)** The method of Claim 5 1, further comprising:

communicating one or more global solutions to the first party and the second party;

receiving selection information from the first party and the second party;

use the selection information to determine a selected global solution from among the communicated global solutions according to a selection approach.

61.   **(Withdrawn)** The method of Claim 60, wherein the selection approach is selected from the group consisting of:

an auction approach; and

a random selection approach.

62.   **(Withdrawn)** The method of Claim 60, wherein the one or more communicated global solutions comprise a filtered global solution determined from among one or more global solutions according to a filtering approach using filtering information received from the first and second parties.

63.   **(Withdrawn)** The method of Claim 51, further comprising mediating at least a portion of a negotiation between the first party and a third party substantially simultaneously with the negotiation between the first party and the second party.

<u>Evidence Appendix</u>

(37 C.F.R. § 41.37(c)(1)(ix))

No evidence is being submitted under 37 C.F.R. §§ 1.130, 1.131, or 1.132.

Related Proceedings Appendix
(37 C.F.R. § 41.37(c)(1)(x))

There are no known appeals, interferences, or judicial proceedings that are related to or that will directly affect, be directly affected by, or have a bearing on the Board's decision regarding this Appeal. Accordingly, no decisions on related appeals are being submitted.